DEPARTMENT OF TRANSPORTATION
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LABORATORY PROCEDURE FOR TREATING ASPHALT BINDER WITH LIQUID ANTI-STRIP FOR ASPHALT CONCRETE MIX DESIGN

SCOPE

This protocol provides a laboratory procedure for treating asphalt binder with liquid anti-strip for use in asphalt concrete mix design.

APPARATUS

1. *Balance* - Accurate to 0.1 g.

2. *Balance* - Accurate to 0.01 g (for weighing liquid anti-strip).

3. *Metal Containers* – Suitable for blending and storing materials.

4. *Oven* – Conforming to California Test 304.

5. *Fume Hood*

6. *Miscellaneous Apparatus and Tools* – Stirring rod, heat resistant gloves and safety glasses or goggles.

MATERIALS

1. Liquid Anti-Strip

   A. Liquid anti strip shall conform to requirements of the project special provisions for "Liquid Anti-Strip Treatment of Asphalt Concrete."
   B. A Certificate of Compliance, certified copy of tests representing each lot, and Materials Safety data Sheets shall accompany all liquid anti-strip submittals.

2. Asphalt Binder

   Asphalt binder treated with liquid anti-strip at the proposed rate shall conform to all tests specified for the proposed asphalt binder.

PROCEDURE

1. Heat the asphalt binder to be used in the mix design to the temperature specified in California Test 304. If a temperature is not specified, heat the asphalt binder to 150°C.

   NOTE: Asphalt binder should not be overheated or allowed to remain at a high temperature for long periods of time.

2. Weigh out a sufficient mass of asphalt binder into a tared metal container and determine the mass to the nearest 0.1g.

3. Weigh out the required amount of liquid anti-strip to the nearest 0.01g to provide the desired proportion by mass of asphalt binder. As an option, an eyedropper can be used to add the liquid anti-strip to the asphalt binder.

   NOTE: The asphalt binder shall contain liquid anti-strip at a rate of 0.5 percent to 1.0 percent by mass of asphalt binder. The exact proportion of liquid anti-strip shall be determined by the Contractor as part of the mix design process.

4. Under an operating fume hood, slowly stir the room-temperature liquid anti-strip into the hot asphalt binder.

   NOTE: It is generally not necessary to heat the liquid anti-strip prior to mixing it with the asphalt binder. However, if the liquid anti-strip is too viscous at room temperature, it may be heated to 38°C and stirred prior to adding it to the asphalt binder.

5. Blend the liquid anti-strip and asphalt binder together for 2 minutes.

   NOTE: Prepare relatively small amounts of liquid anti-strip treated binder. Reheating of the treated binder for future use will not be allowed.

6. Proceed with the mix design in accordance with California Test 304.

PRECAUTIONS

Extra care should be taken with the use of liquid anti-strip. It may have a strong or unpleasant odor. Adequate ventilation and the proper safety equipment should be utilized. Avoid contact with the skin and eyes and avoid breathing contaminated air.
Do not place or store any sealed container in an oven.

Prior to sampling, handling materials or testing, Caltrans personnel are required to read Part A (Section 5.0), Part B (Sections 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual and the Materials Safety Data Sheets (MSDS) for all materials used.